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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/573,084	03/23/2006	Marcellinus P.C.M. Krijn	GB030164	6994
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EXAMINER ANDERSON, GUY G				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/573,084

Applicant(s)

KRIJN ET AL.

Examiner

Guy G. Anderson

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-42 is/are pending in the application.
- 4a) Of the above claim(s) 27-31, 39 and 40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-26, 32-38, 41-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

- 1.1 Applicant's arguments with respect to claims 21-26, 32-38 and 41 have been considered but are moot in view of the new ground(s) of rejection.

Response to Amendment

Claim Rejections - 35 USC § 103

- 2.1 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
- 2.2 This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
- 2.3 **Claims 21-22, 33, 35, 37-38, 42 are rejected under 35 U.S.C. 103(a)** as being unpatentable over either US-5897184 to Eichenlaub or US-6474827 to Shinohara in view of US-6379017 to Nakabayashi.

Regarding claims 21-22, 33, 35, 37-38, 42, Eichenlaub discloses a stereoscopic display system comprising:

Claim 21a) (previously presented): A three-dimensional (3D) display device comprising a backlight [Abstract, Fig. 3-4], the backlight comprises a planar light guide through which light is guided transversely by internal reflection [Abstract,

Fig. 3-4], wherein regions of the light guide are configured to direct light propagating within the light guide [Abstract, Fig. 3-4, grooves], out of a face of the light guide so as to form a plurality of line light sources. [Abstract.]

Claim 22a) (previously presented): The 3D display device according to claim 21, wherein said regions comprise grooves. [Abstract, Fig. 3-4, grooves]

Claim 33 (previously presented): The 3D display device according to claim 22, wherein the grooves have a V-shaped cross-section.

Claim 35 (previously presented): The 3D display device according to claim 21, comprising a light source disposed adjacent to at least one side face of the light guide. [Fig. 3, #36]

Claim 37 (previously presented): The 3D display device according to claim 22, comprising a backlight and a display panel. [Fig. 10, #62]

Claim 38 (previously presented): The 3D display device according to claim 37, wherein the grooves of the light guide are skewed by an angle relative to columns of sub-pixels of the display panel. [Fig. 7, grooves are skewed relative to anything outside the light guide]

Claim 42 (new): The 3D display device according to claim 21, wherein the regions are arranged such that light exits the light guide at positions coinciding with the regions.

Regarding claims 21-22, 33, 35, 37-38 Shinohara discloses an image display device with all of the above listed limitations. [Abstract, Fig. 17, 19, 34-35, Fig. 82 #104]

Neither Eichenlaub or Shinohara disclose:

21b) without passing through the light guide after being directed by the regions.

22b) positioned on the face of the light guide through which light propagates out of the light guide.

Nakabayashi discloses an illuminating system wherein these limitations are met as a means of guiding light out of a light guide. [Fig. 1-4, Col. 8-10, wherein light rays meeting certain angle requirements according to Snells law are passed out of the light guide by the slit without passing through the light guide after being directed.

Further, Nakabayashi discloses several embodiments [Fig. 11-13] which indicate that placement of the light reflecting or guiding regions is a matter of obvious design choice. Since Nakabayashi, Eichenlaub and Shinohara are all from the same field of endeavor, the teachings of Nakabayashi would have been recognized as being in the pertinent art. Therefore, it would have been obvious to combine the teachings of Nakabayashi with Eichenlaub and Shinohara in order to create a more efficient light guide plate that did not obstruct observers field of view at the slit locations.

- 2.4 **Claim 23 is rejected under 35 U.S.C. 103(a)** as being unpatentable over either US-5897184 to Eichenlaub or US-6474827 to Shinohara in view of US-6379017 to Nakabayashi in view of US-5546492 to Ansley and JP 2000171798 A to Higuchi.

Regarding claim 23, neither Eichenlaub nor Shinohara nor Nakabayashi specifically disclose:

Claim 23 (previously presented): The 3D display device according to claim 22, wherein the grooves are filled with a material having a higher refractive index than the light guide.

Higuchi discloses a light source with a light guide plate wherein multiple grooves are formed on the emission surface of the light guide plate and filled with material whose refractive index is less than that of the light guide plate. [Basic abstract text.]

Ansley disclose making grooves in a fiber optic ribbon display and fuilli9ng the grooves with material with a higher refractive index than the index of the ribbon. [Col. 7, lines 40-50/]

Since Higuchi and Ansley are from the same field of endeavor as Eichenlaub and Shinohara, the groove filling material would have been recognized as being in the pertinent art.

Therefore, it would have been obvious to combine the features of Higuchi and Ansley with Eichenlaub and Shinohara in order to control the refractive index of the emission surface of the light guide plate, And thus the TIR of the plate.

- 3.3 **Claim 26, 34, are rejected under 35 U.S.C. 103(a)** as being unpatentable over either US-5897184 to Eichenlaub or US-6474827 to Shinohara in view of US-6379017 to Nakabayashi in view of US-2002/0089620 to Yamamoto.

Regarding claim 26, 34, neither Eichenlaub nor Shinohara nor Nakabayashi specifically disclose:

Claim 26 (previously presented): The 3D display device according to claim 23, wherein the material is Poly(naphthyl methacrylate).

Claim 34 (previously presented): The 3D display device according to claim 21, wherein the light guide is made from Poly(methyl methacrylate).

Yamamoto discloses a substance for filling in pores in a anisotropic scattering film for light guides that can comprise this substance. [Paragraph 69]

It would have been obvious for one of ordinary skill in the art to use Poly Naphthyl Methacrylate in order to provide an organic isotropic filler that is not birefringent in the pores or grooves of a light guide in order to reduce backscattering. [Paragraph 67]

- 3.4 **Claim 36 is rejected under 35 U.S.C. 103(a)** as being unpatentable over either US-5897184 to Eichenlaub or US-6474827 to Shinohara in view of US-6379017 to Nakabayashi in view of US-7128459 to Igarashi.

Regarding claim 36, neither Eichenlaub nor Shinohara nor Nakabayashi specifically disclose:

Claim 36 (previously presented): The 3D display device according to claim 35, wherein the light source is one of an LED and a CCFL.

Igarashi discloses a light guide plate that can utilize either of these sources. [Fig. 9, #80, Fig. 6, #53]

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the light guide plate source design of Igarashi in order to make the light guide more energy efficient.

- 3.5 **Claim 24-25, 32 and 41 are rejected under 35 U.S.C. 103(a)** as being unpatentable over either US-5897184 to Eichenlaub or US-6474827 to Shinohara in view of US-6379017 to Nakabayashi in view of either US-2005/0162586 to Bac or US-6545811 to Fujimoto.

Regarding claim 24-25, 32, and 41, neither Eichenlaub nor Shinohara nor Nakabayashi specifically disclose:

Claim 24 (previously presented): The 3D display device according to claim 22, comprising cylindrical lenses disposed in the mouths of each groove.

Claim 25 (previously presented): The 3D display device according to claim 24, wherein the cylindrical lenses are formed integrally with the material which fills the grooves.

Claim 32 (previously presented): The 3D display device according to claim 23, wherein the material which fills the grooves is formed as a layer extending across the upper surface of the light guide, the thickness of the layer being small with respect to the period of the grooves.

Claim 41 (new) The 3D display device according to claim 21, wherein the regions comprise microstructures positioned on the face of the light guide through which light propagates out of the light guide.

Bae discloses a liquid crystal panel wherein grooves are formed and cylindrical lens are formed by filling the grooves with transparent material. [Abstract, Fig. 1-5, paragraphs 18-20]

Fujimoto discloses a lens unit for scanners wherein hollows/grooves are filled with a liquid material to integrally form concave lens shapes. [Abstract, Fig. 2, Col. 2-3, lines 35-67 and 1-57 respectively, Col. 6-7, lines 55-67 and 1-55 respectively.]

Since Bae, Fujimoto, Eichenlaub and Shinohara are all from the same field of endeavor, the groove filling structures of Bae and Fujimoto would have been recognized as being in the pertinent art of both primary references.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the groove filling structures and methods of Bae and Fujimoto in order to provide a lens let array on a light guide for a display, or to provide microstructures such as lenslets.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guy G. Anderson whose telephone number is 571.272.8045. The examiner can normally be reached on Tuesday-Saturday 1400-2200.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 571.272.2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Guy G Anderson/
Patent Examiner, Art Unit 2883

/Frank G Font/
Supervisory Patent Examiner, Art Unit 2883

September 29, 2009
FGF/gga